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Agency

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and Indoor Air  
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Emergency Response  
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ORIA / Superfund

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# Soil Screening Guidance for Radionuclides: User's Guide



# **Soil Screening Guidance for Radionuclides: User's Guide**

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Office of Emergency and Remedial Response  
U.S. Environmental Protection Agency  
Washington, DC 20460

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## **ACKNOWLEDGMENTS**

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The development of this guidance was a team effort led by the staff of the Office of Radiation and Indoor Air (ORIA), and the Office of Emergency and Remedial Response (OERR). Phil Newkirk and Ron Wilhelm of ORIA, and Stuart Walker of OERR, are the principal EPA authors of the document, with significant contributions from Ken Lovelace and Janine Dinan of OERR.

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## DISCLAIMER

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Notice: The Soil Screening Guidance is based on policies set out in the Preamble to the Final Rule of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), which was published on March 8, 1990 (55 *Federal Register* 8666).

This guidance document sets forth recommended approaches based on EPA's best thinking to date with respect to soil screening for radionuclides. This document does not establish binding rules. Alternative approaches for screening radionuclides in soil may be found to be more appropriate at specific sites (e.g., where site circumstances do not match the underlying assumptions, conditions and models of the guidance). The decision whether to use an alternative approach and a description of any such approach should be placed in the Administrative Record for the site. Accordingly, if comments are received at individual sites questioning the use of the approaches recommended in this guidance, the comments should be considered and an explanation provided for the selected approach. The Soil Screening Guidance for Radionuclides: Technical Background Document (TBD) may be helpful in responding to such comments.

The policies set out in both the Soil Screening Guidance for Radionuclides: User's Guide and the supporting TBD are intended solely as guidance to the U.S. Environmental Protection Agency (EPA) personnel; they are not final EPA actions and do not constitute rulemaking. These policies are not intended, nor can they be relied upon, to create any rights enforceable by any party in litigation with the United States government. EPA officials may decide to follow the guidance provided in this document, or to act at variance with the guidance, based on an analysis of specific site circumstances. EPA also reserves the right to change the guidance at any time without public notice.

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## LIST OF ACRONYMS

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| ARAR    | Applicable or Relevant and Appropriate Requirement                   |
| ASTM    | American Society for Testing and Materials                           |
| CERCLA  | Comprehensive Environmental Response, Compensation and Liability Act |
| CLP     | Contract Laboratory Program  |
| CSM     | Conceptual Site Model  |
| CV      | Coefficient of Variation   |
| DAF     | Dilution Attenuation Factor  |
| DQA     | Data Quality Assessment  |
| DQO     | Data Quality Objective   |
| EA      | Exposure Area  |
| EPA     | Environmental Protection Agency                                      |
| HEAST   | Health Effects Assessment Summary Table                              |
| HELP    | Hydrological Evaluation of Landfill Performance                      |
| HHEM    | Human Health Evaluation Manual                                       |
| IRIS    | Integrated Risk Information System                                   |
| ISC2    | Industrial Source Complex Model                                      |
| MARSSIM | Multi-Agency Radiation Survey and Site Investigation Manual          |
| MCL     | Maximum Contaminant Level  |
| MDC     | Minimum Detectable Concentration                                     |
| NPL     | National Priorities List   |
| NTIS    | National Technical Information Service                               |
| OERR    | Office of Emergency and Remedial Response                            |
| ORIA    | Office of Radiation and Indoor Air                                   |
| PA/SI   | Preliminary Assessment/Site Inspection                               |
| PEF     | Particulate Emission Factor  |
| PRG     | Preliminary Remediation Goal   |
| QAPP    | Quality Assurance Project  |
| Q/C     | Site-Specific Dispersion Model                                       |
| QA/QC   | Quality Assurance/Quality Control                                    |
| RAGS    | Risk Assessment Guidance for Superfund                               |
| RCRA    | Resource Conservation and Recovery Act                               |
| RfD     | Reference Dose   |
| RI      | Remedial Investigation   |
| RI/FS   | Remedial Investigation/Feasibility Study                             |
| RME     | Reasonable Maximum Exposure  |
| ROD     | Record of Decision   |
| SAB     | Science Advisory Board   |
| SAP     | Sampling and Analysis Plan   |
| SSL     | Soil Screening Level   |
| TBD     | Technical Background Document  |
| USDA    | U.S. Department of Agriculture                                       |
| WRS     | Wilcoxon Rank Sum  |